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Electric arc atomization. Experiment, theory, analytical prospects

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Abstract

Progress in atomic-absorption analysis is largely due to the development of flame and electrothermal atomization methods. However, despite the considerable advance in this field these techniques prove to be ineffective in dealing with such important tasks as direct analysis of monolithic samples and determination of elements forming thermally stable molecular compounds. In this respect, thanks to the optimum temperature of the absorption zone, electric arc atomization looks very promising. The review summarizes the results of the authors' fifteen-year-long work concerned with designing the appropriate equipment, the study of analytical signal formation and its theoretical modelling, as well as the study of the analytical prospects of the electric arc atomizer.